

REMARKS

Claims 1-35 were pending in this application prior to this response. Claims 21, 23, and 24 were allowed and claims 17, 19, 20, and 35 were objected to. The remaining claims were rejected. Claims 7-10, 12-20, 22, and 24-34 have been amended and claims 1-6, 11, and 35 have been cancelled herein. The applicants request reconsideration of all rejected claims.

I. Objections to Claims 26-29

Claims 26 and 27 were objected to due to a lack of antecedent basis for the term "period of the artificial illumination." Claims 26 and claim 27 have been amended so as to overcome the objection.

Claims 28 and 29 were objected due to a lack of antecedent basis for the term "periodic changes." Claims 28 and 29 have been amended so as to overcome the objection.

II. Rejection of Claims 1-6 and 25-34 Under 35 U.S.C. §103(a)

Claims 1-6 and 25-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hashimoto (U.S. 6,130,417) in view of Munson (U.S. 6,295,085), in further view of Takahashi (U.S. 6,630,960).

Claims 1-6 have been cancelled herein.

CLAIM 25

Claim 25 is independent and is restated as follows:

A method for auto-exposure control during capture of a scene by an imaging device, said method comprising:

determining a presence of artificial illumination in the scene;
determining a period of intensity variations in the artificial illumination;
setting an exposure length equal to an integer multiple of the period
of the intensity variations in the scene;
taking at least one first exposure of the scene using the exposure
length;
determining at least one exposure parameter for the scene using the
at least one first exposure; and
taking a second exposure using the exposure parameter, wherein the
second exposure is centered at a cross-over point in the intensity variations.

Claim 25 has been amended to incorporate the elements of claim 35, which was objected to as being dependent on a rejected claim. Therefore, claim 25 and all the claims depending therefrom are allowable.

The applicants request reconsideration of the rejection.

III. Rejection of Claims 7-15 Under 35 U.S.C. §103(a)

Claims 7-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Munson (U.S. 6,295,085) in view of Takahashi (U.S. 6,630,960).

CLAIM 7

Claim 7, as amended herein, is restated as follows:

A method for auto-exposure control, comprising:
determining a frequency of intensity variations in a scene by
measuring contrast variations in the scene;

determining that the scene is illuminated with an artificial illuminant if the contrast variations in the scene exceed a predetermined value;

taking at least one exposure of the scene commencing at a preselected phase in the contrast variations; and

determining at least one exposure parameter for the scene using the at least one exposure.

Some portions of claim 7 that are not disclosed by either Munson or Takahashi are restated above in bold type. The bolded section of claim 7 comprises elements of claim 11 (cancelled herein) that have been incorporated into claim 7.

According to the office action, Munson and Takahashi teach the limitations of claim 11. The applicant disagrees with the office action. In summary, Munson and Takahashi teach comparing voltage levels representative of light intensity to preselected voltages. These methods do not relate to contrast, which is a difference between dark and light areas in a scene.

With regard to Munson, the office action cites column 5, lines 12-28 as a basis for the rejection. This section of Munson only relates to a light sensor comparing ambient light to a predetermined level. Thus, this section of Munson only teaches determining light intensity and not contrast as claimed in claim 7. As set forth above, contrast is a difference between a bright section and a dark section of a scene, not simply light intensity.

With regard to Takahashi, the office action is silent with regard to contrast measurements.

Based on the foregoing, neither Munson, Takahashi, nor their combination teach all the elements of claim 7. Thus, they cannot render claim 7 obvious. Therefore, the applicant requests reconsideration of the rejection.

CLAIMS 8-10 and 12-15

Claims 8-10 and 12-15 are dependent on claim 7 and are deemed allowable by way of their dependence and for other reasons. Based on the foregoing, the applicant requests reconsideration of the rejections.

IV. Rejection of Claim 16 Under 35 U.S.C. §103(a)

Claim 16 was rejected under 35 U.S.C. §103(a) as being unpatentable over Munson (U.S. 6,295,085) in view of Takahashi (U.S. 6,630,960), in further view of Hashimoto.

Claim 16 is dependent on claim 7 and is deemed allowable by way of its dependence and for other reasons. Therefore, the applicants request reconsideration of the rejection.

V. Rejection of Claim 18 Under 35 U.S.C. §103(a)

Claim 18 was rejected under 35 U.S.C. §103(a) as being unpatentable over Iwasaki (U.S. 5,701,526) in view of Inuiya (U.S. 5,905,529), further in view of Smith (U.S. 6,501,518), further in view of Takahashi (U.S. 6,630,960).

Claim 18 is independent and, as amended herein, is restated as follows:

A method for auto-exposure control, comprising:
predicting at least one frequency for a variation in the illumination in the scene;

measuring light from the scene at a periodic rate, wherein the periodic rate is different than any of the predicted frequencies, using an exposure length that is different than any of the periods of the predicted frequencies;

detecting the presence of an artificial illuminant when the measured light from the scene contains periodic changes;

determining the phase and frequency of the periodic changes with fast Fourier transform analysis of the measured light;

synchronizing an exposure time with a phase angle associated with the frequency of the intensity variations in the scene;

taking at least one exposure of the scene at the synchronized exposure time, the at least one exposure having an exposure length;

determining at least one exposure parameter for the scene using the at least one exposure.

The office action combined four references in order to reject claim 18. The applicants contend that there is no motivation to combine these four references. The applicant notes MPEP, section 706.02(j), which states:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure.

According to the office action, the elements of "measuring light from the scene at a periodic rate, wherein the periodic rate is different than any of the predicted frequencies" and "exposure length that is different than any of the periods of the predicted frequencies" are disclosed by Iwasaki. Also, according to the office action, Inuiya teaches detecting the presence of an artificial illuminant when the measured light

from the scene contains periodic changes. The office action simply states that the combination would have been obvious to one skilled in the art. However, there is no teaching or suggestion to make the combination in the cited art as required by MPEP §706.02(j).

The office action further states that Smith teaches using a Fast Fourier Transform (FFT) to determine the phase and frequency of the periodic changes. Again, there is no suggestion in the cited art of Smith to bring it into the combination. The office action cited Takahashi for teaching determining at least one exposure parameter for the scene using the at least one exposure. Again, none of the cited art offers any suggestion for including Takahashi into the combination.

Based on the foregoing, the applicant contends that the rejection is not proper and request reconsideration of the rejection.

VI. Rejection of Claim 22 Under 35 U.S.C. §103(a)

Claim 22 was rejected under 35 U.S.C. §103(a) as being unpatentable over Iwasaki (U.S. 5,701,526) in view of Ohkawara (U.S. 6,683,652), in further in view of Takahashi (U.S. 6,630,960).

Claim 22 is independent and is restated as follows:

An apparatus for auto-exposing a scene comprising:

a means for measuring light from the scene at a periodic rate using a predetermined exposure time;

a means for determining the presence and frequency of intensity variations of an artificial illuminant in the scene by examining the measured light from the scene for periodic intensity variations;

a means for determining exposure parameters from the scene synchronized with the frequency of intensity variations.

The applicants contend that the use of the three references cited in the office action is not proper per MPEP §706.02(j), which is partially restated above. More specifically, the office action does not state wherein the cited art the suggestion for the combination is made.

Based on the foregoing, the applicant contends that the rejection has been overcome.

In view of the above, all of the pending claims are now believed to be in condition for allowance and a notice to that effect is earnestly solicited.

Respectfully submitted,
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